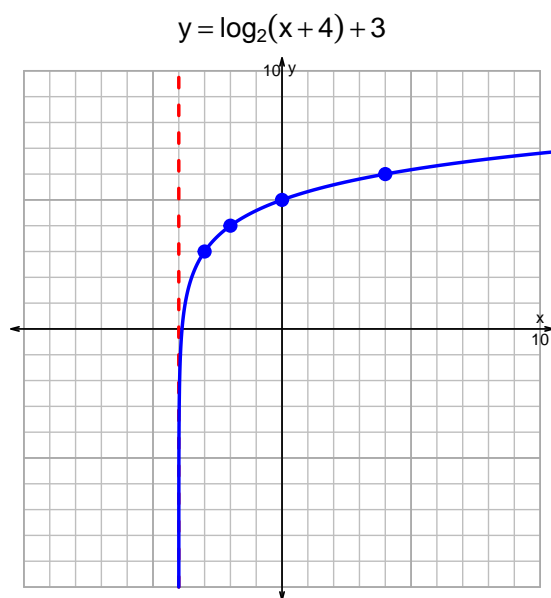
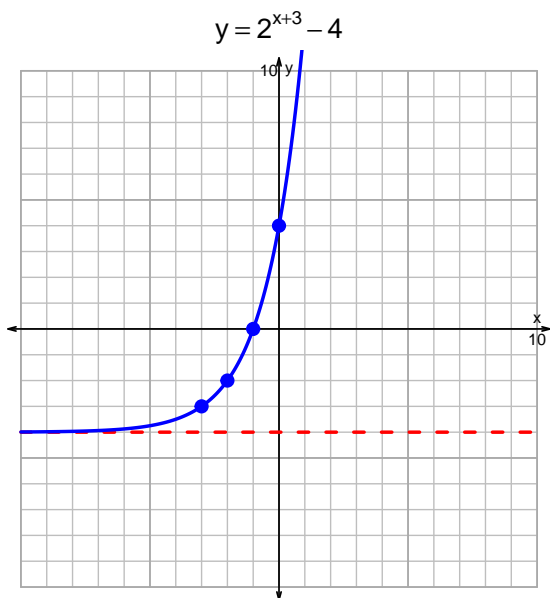


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v237)

1. Graph $y = 2^{x+3} - 4$ and $y = \log_2(x + 4) + 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$23 = \left(\frac{3}{5}\right) \cdot 2^{4t/7}$$

Divide both sides by $\frac{3}{5}$.

$$\frac{23 \cdot 5}{3} = 2^{4t/7}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{23 \cdot 5}{3} \right) = \frac{4t}{7}$$

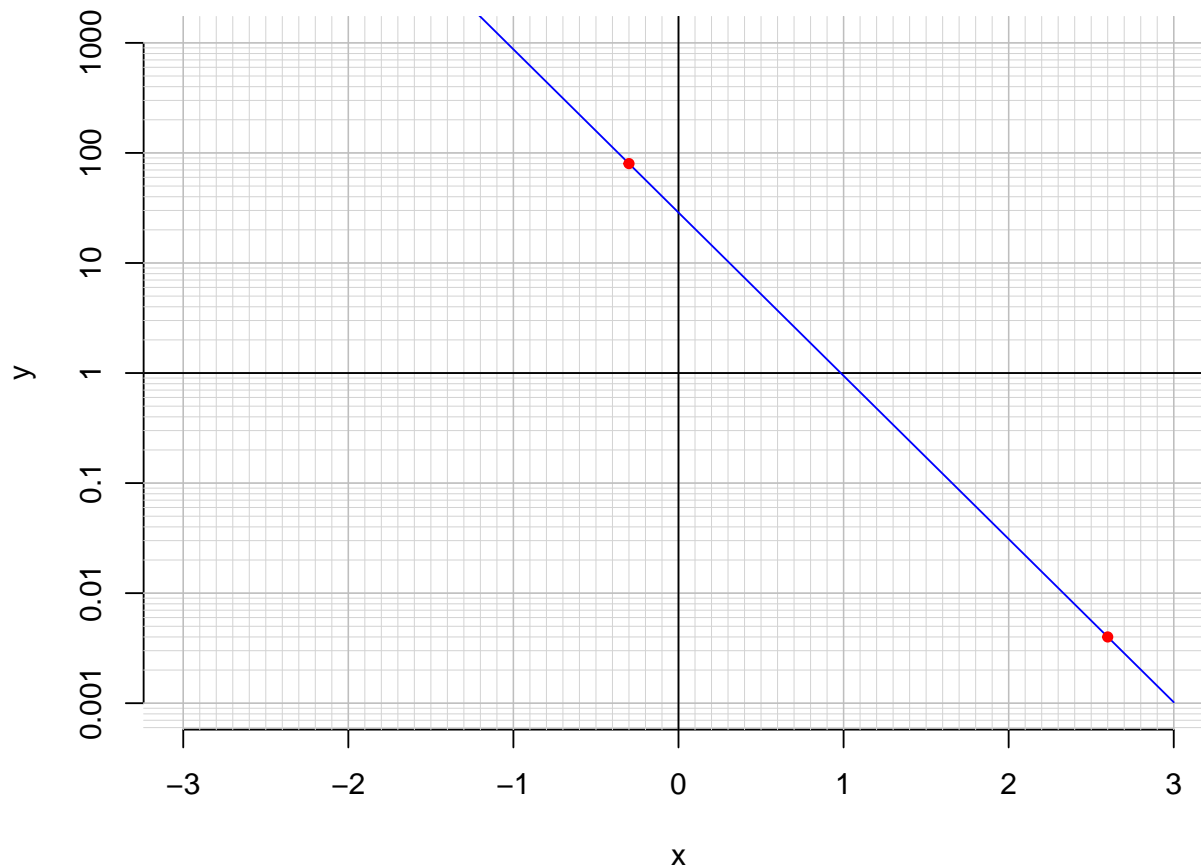
Divide both sides by $\frac{4}{7}$.

$$\frac{7}{4} \cdot \log_2 \left(\frac{23 \cdot 5}{3} \right) = t$$

Switch sides.

$$t = \frac{7}{4} \cdot \log_2 \left(\frac{23 \cdot 5}{3} \right)$$

3. An exponential function $f(x) = 28.7 \cdot e^{-3.41x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-0.3)$.

$$f(-0.3) = 80$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{3.41} \cdot \ln\left(\frac{x}{28.7}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.004)$.

$$f^{-1}(0.004) = 2.6$$